CERCLA

Preliminary Assessment Report

Illinois Environmental Protection Agency
P.O. Box 19276,
Springfield, IL 62794-9276

Confidential Material May be Enclosed

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6834

1. INTRODUCTION

Palos Forest Preserve was placed on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) on July 20, 1992. This discovery action was taken because meetings and communications between the U.S. Department of Energy - Chicago Office (DOE), the Illinois Department of Nuclear Safety (IDNS) and the Illinois Environmental Protection Agency (IEPA) resulted in the need for a CERCLA investigation and Hazard Ranking Score of the site. The Preliminary Assessment is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 as amended by the Superfund Amendments and Re-authorization Act (SARA) of 1986.

2. SITE INFORMATION

Palos Forest Preserve is located just east of the confluence of the Des Plaines River and the Calumet Sag Channel in Cook County. The towns of Willow Springs to the northeast, and Hickory Hills and Palos Hills to the east border the forest preserve. The streets that border the forest preserve are Archer Avenue to the north and west, 107th Street to the south and Wolf Road to the east. The actual site consists of about 25 acres in areas called Site A and Plot M. Site A and Plot M are both surrounded by wooded areas of the forest preserve. The sites specific location is described as the southeast quarter of Section 12, southwest quarter of Section 7, northeast quarter of

Section 13 and the northwest quarter of Section 18, Township 37 North, Range 11 East.

Palos Forest Preserve consists mainly of forested land with occasional small ponds, wetlands and grassy areas. Site A is approximately 19 acres of forested land which is located on a rolling upland and is surrounded by a few topographic depressions. Site A and its surrounding land are enclosed by an approximately eight-foot high chain link fence. Plot M is an approximately one acre topographically level grassy area which is bordered by intermittent streams on its eastern and western sides. It is surrounded on all sides by forested land. Plot M is located approximately 2000 feet north of Site A. Figures 2-1 through 2-5 on the following pages show the site and its surroundings.

FIGURE 2-3

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Palos Hills Forest Preserve SITE ILD 984 903 286
LOCAL AREA MAP & TOPOGRAPHY	
Scale: 1:24,000	
LEGEND: Site Location	

FIGURE 2-1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Palos Hills Forest Preserve SITE ILD 984 903 286
ILLINOIS STATE MAP	
LEGEND: O Site Location	

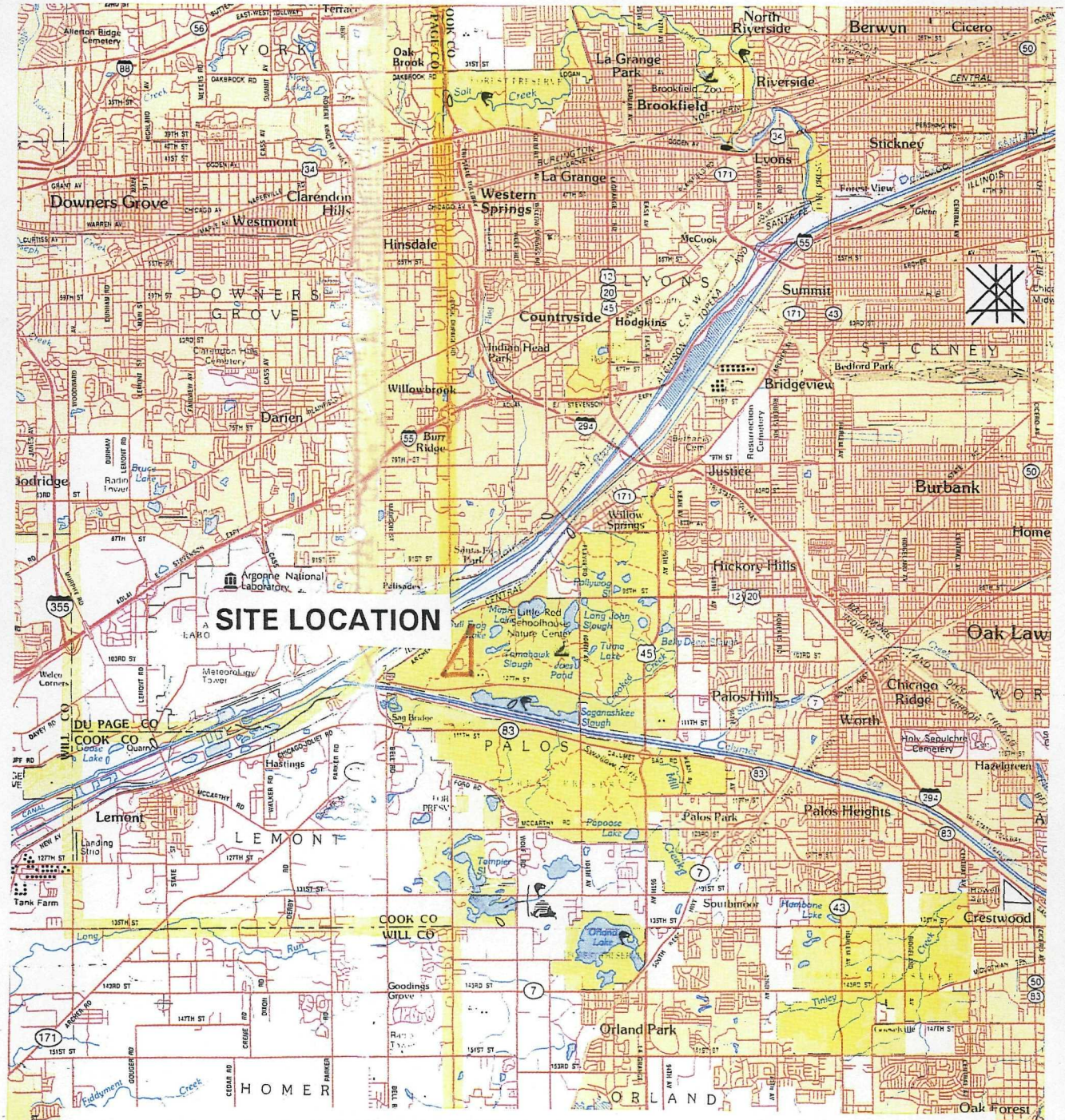
SITE LOCATION
Palos Hills Forest Preserve
Site ILD 984 903 286
Regional Area Map
Scale: 1" = 2.4 miles
LEGEND: Site Location

FIGURE 2-2

3. SITE HISTORY

3.1 Background Historical Information

In July 1942, the U.S. Army Corps of Engineers leased 1,025 acres of land within the Palos Forest Preserve from the Forest Preserve District of Cook County. The areas which were used were called Site A and Plot M along with supporting roads and trails for access to and around the sites. This amounted to only about 25 acres of the original 1,025 leased. The land was needed for highly secret research and development work under the Manhattan Project (the name given to the U.S. effort during World War II to develop the first atomic bomb). The Manhattan project was conducted in many universities and research centers around the United States. The institution working on this project in the Chicago area was called the Metallurgical Laboratory, which was managed by the University of Chicago. The Palos Forest Preserve site was acquired as a place to build the first controlled, self-sustaining nuclear reactor and carry out research involving the reactor. Because of its seclusion and distance from the crowded Chicago metropolitan area, the site was thought to be an ideal location. However, because of time pressures, Enrico Fermi and his colleagues actually built the first reactor on the University of Chicago campus in November 1942. The reactor was named Chicago Pile-1 (CP-1), and it achieved the first controlled, self-sustaining nuclear chain reaction on December 2, 1942.

The following tells of DOE's activities at the Palos Forest Preserve. Site A refers to the 19-acre experimental area which

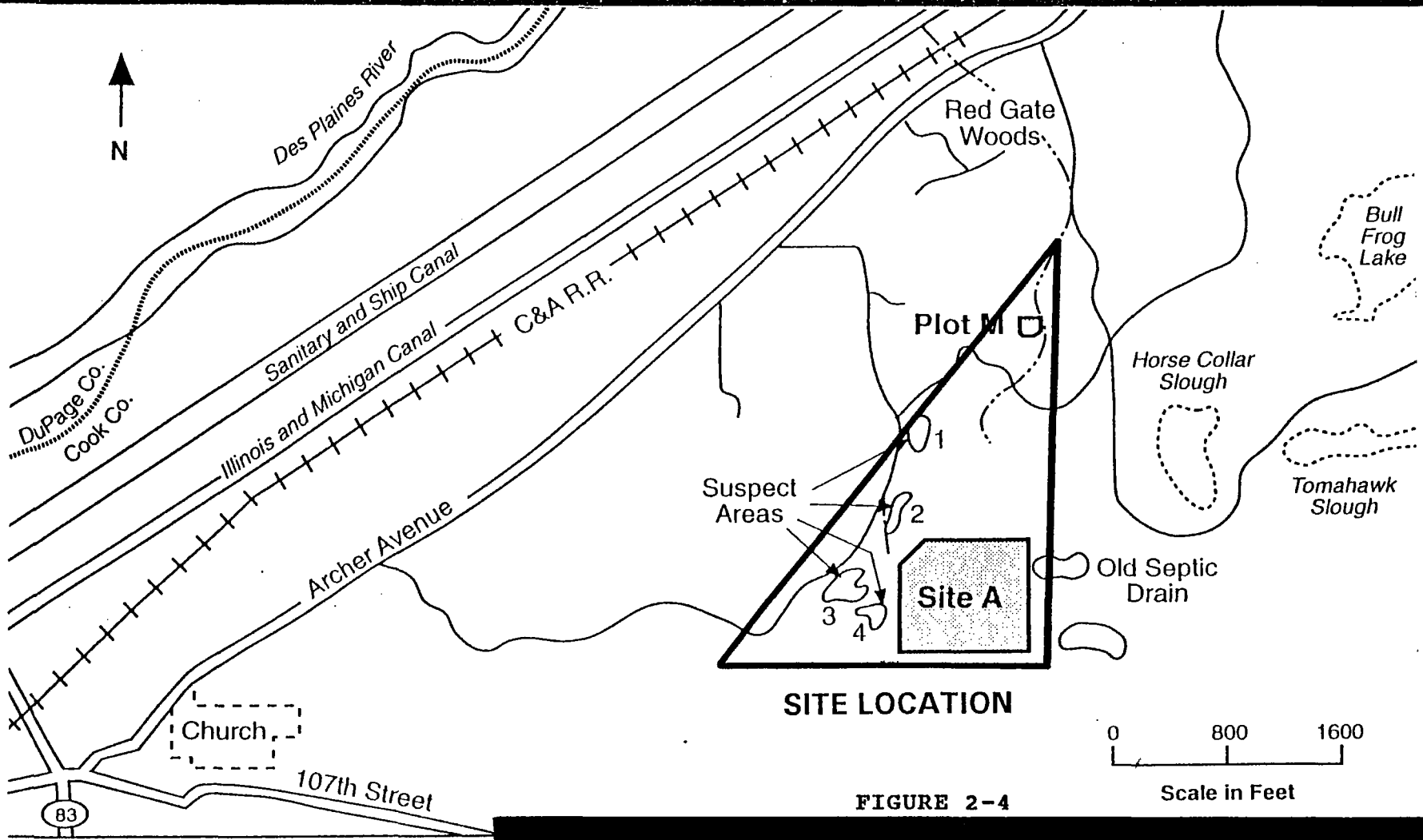

FIGURE 2-4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Palos Hills Forest Preserve SITE ILD 984 903 286
SITE MAP	
source: U.S. Dept. of Energy	

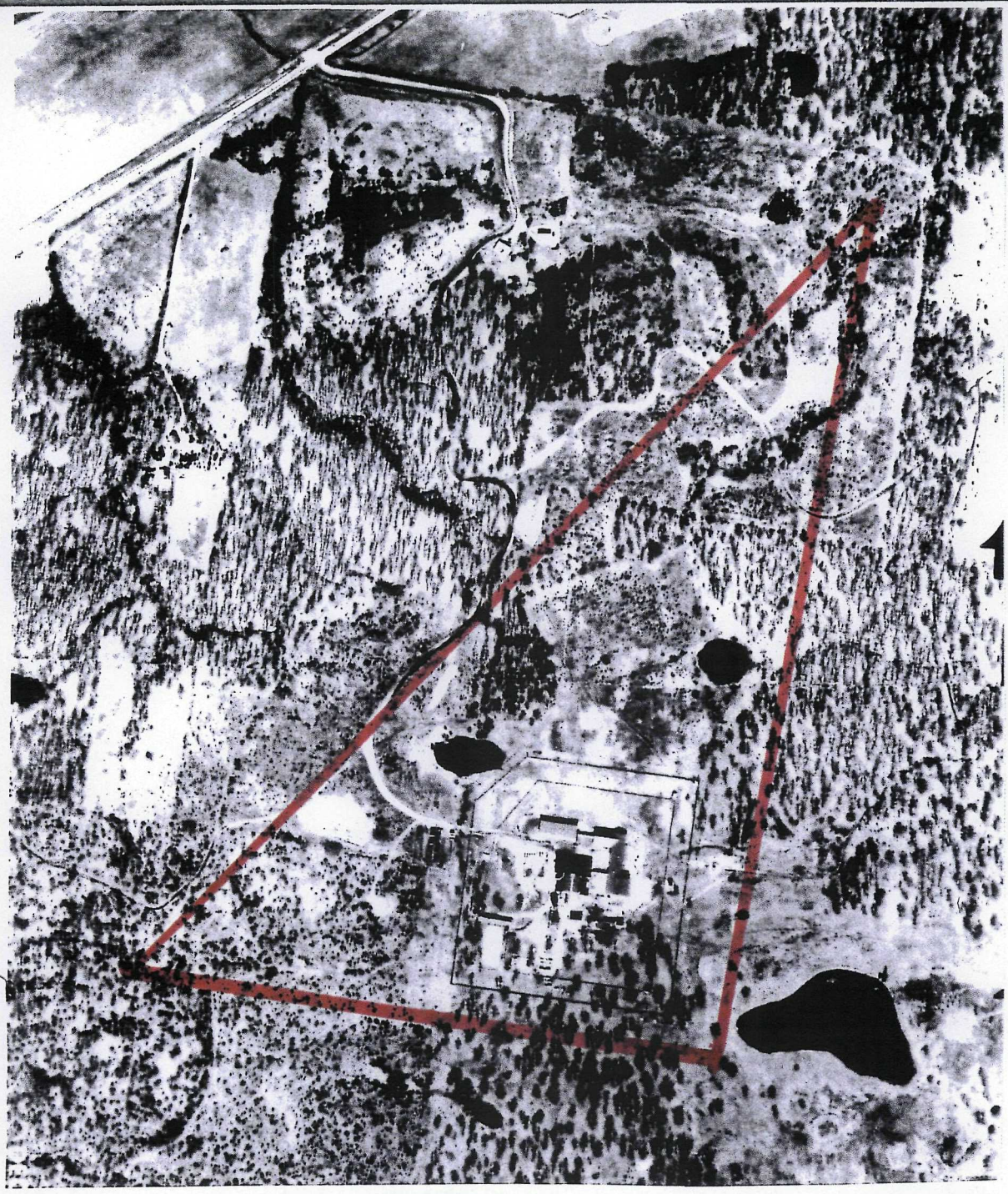

FIGURE 2-5

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Palos Hills Forest Preserve SITE ILD 984 903 286
1946 AERIAL PHOTOGRAPH	
LEGEND: ◭ Site Location	

contained two nuclear reactors and associated buildings and laboratories, while Plot M refers to a one-acre radioactive waste burial site located about 2,000 feet north of Site A.

3.2 History of Site A

Early in 1943, the CP-1 reactor at the University of Chicago was disassembled, moved to Site A, rebuilt as CP-2, and placed into operation. CP-2 was constructed with graphite blocks and natural uranium embedded in graphite blocks. The reactor had a concrete shield to reduce the radiation levels around it. The overall dimensions of the reactor, including the shield, were 30′ x 32′ x 25.5′ high. It was cooled by natural-convection ambient air and usually operated at around 2 kW thermal power.

Construction began in September 1943 on a new reactor at Site A. This second reactor, named CP-3 started operation on May 15, 1944. As with CP-2, CP-3 was fueled with natural uranium, but heavy water was used to cool the reactor (as opposed to air cooling in CP-2) and to slow down the energetic neutrons (as opposed to graphite in CP-2). The reactor consisted of an aluminum tank, six feet in diameter and eight feet ten inches high, which was filled with approximately 6.5 tons of heavy water. In this tank were suspended 120 uranium metal rods with aluminum cladding. The rods were 1.1 inches in diameter and six feet long. On the bottom and sides, the reactor vessel was surrounded by a 2 foot thick layer of graphite. The graphite reflected some of the escaping neutrons back into the vessel. A 4 inch thick thermal shield made of a lead-cadmium alloy

surrounded the graphite reflector and fit snugly against an eight-foot thick concrete shield that encased the entire reactor. The top of the reactor was shielded by a thin layer of cadmium, 1 foot of lead, and a four foot thick cover consisting of alternate layers of steel and compressed wood fiber.

CP-3 was dismantled in January 1950 because of suspected corrosion of the aluminum cladding of some of the fuel rods, and the natural uranium fuel was replaced with highly enriched uranium. The new fuel rods, which contained a total of 4.5 kg of highly enriched uranium, were made of a 2% uranium-98% aluminum alloy. Each fuel rod was .85 inches in diameter and 5.5 feet long. The new reactor was named CP-3'and began operation in May 1950.

Among the programs carried out at Site A during and after World War II were fission product separations, reactor physics studies, tritium recovery from irradiated lithium, metallurgical studies and the metabolism of radionuclides in laboratory animals.

In 1947, the present DuPage County site of the Argonne National Laboratory (ANL) was obtained and by 1949 the first permanent buildings at this location were completed. As the facilities at ANL were completed, the programs were transferred from Site A to ANL.

3.3 History of Plot M

Plot M was used for the burial of radioactive waste both from the University of Chicago Metallurgical Laboratory and Site

A operations from about May 1944 to May 1949. During the first several years of operations, radioactive materials, both solid and liquid, in glass and metal containers were placed in the bottom of six-foot deep trenches. Soil was used to cover the material to reduce the surface radiation, and then additional radioactive material was placed on top of the original and layered, then covered. This procedure was continued until the trench was full. During early 1948, material was placed into steel bins, which were placed in the trenches and covered with soil. The burial area eventually covered an area 150 feet by 140 feet. No precise inventory of the buried material is available.

During 1949, bins were removed to search for some missing uranium-235, which was found. The bins were not reburied, but shipped to the present ANL-site. After this work was completed, burial at Plot M was discontinued and the Plot was covered with additional soil and seeded with a grass cover.

Plot M remained in this condition until the spring of 1956, when an inverted concrete box was constructed to cover the entire burial plot. The concrete sidewalls were extended eight feet into the ground and a one-foot thick concrete slab was placed over the entire area. The concrete was covered with two feet of soil, grass was seeded, and an inscribed granite marker was placed in the center of Plot M. The purpose of the concrete barrier was to protect the contents and impede the flow of water through the buried radioactive materials. The decision to decommission the Plot in this way was made after considering

alternative methods, including removal of the contents of the burial plot.

3.4 Site A/Plot M History Since 1956

In 1947, a revised lease agreement with the Cook County Forest Preserve District made it necessary to completely return the leased land to the forest preserve district by June 30, 1956. As part of the revised lease, it was necessary for DOE to "remove, destroy, or render harmless any or all installations, structures, appurtenances, materials, or conditions of the ground or terrain which shall be dangerous, perilous, or hazardous in nature or which, if permitted to remain, would interfere with the full use and enjoyment of the said premises by the public as a part of the Forest Preserve District". In the spring of 1955, work to comply with these requirements was begun.

As programs were moved to ANL, the empty buildings were surveyed, decontaminated if necessary, and razed. The buildings housing CP-2 and CP-3' were the only areas requiring extensive decontamination. The reactors were dismantled, the heavy water was removed and the fuel shipped to Oak Ridge National Laboratory for reprocessing. The tank which had contained the heavy water in the CP-3' reactor was filled with concrete. The space between the tank and biological shield was also filled with concrete, into which was dumped hardware, piping and miscellaneous contaminated items. A 40-foot deep excavation was dug next to the CP-3' containment shell, and with the use of explosives, the reactor shell was tumbled into the pit. The shell was covered

with CP-2 and CP-3' building rubble and then dirt. After demolition was completed at Site A, the area was graded and an inscribed granite marker was placed near the location of the buried reactor.

By the summer of 1956, all demolition and restoration work was complete at both Site A and Plot M. All personnel were removed and the sites were given back to the Cook County Forest Preserve District.

The site remained in this condition until 1973 when monitoring detected tritium in the Red Gate Woods picnic wells. Since this time, DOE has been collecting and analyzing about 400 samples from on and around the site annually, mainly for radionuclides. Included in this monitoring program has been groundwater, surface water, soil and air samples. In 1990, surface contamination was discovered near Site A and a surficial site characterization program was begun to identify the full extent of residual radioactivity and possible chemical contamination on and near Site A.

At the end of 1992, three environmental groups (Greenpeace, USA and Broken Arrow of Willow Springs) commissioned SEARCH Technical Services to conduct an environmental study of the site. This study reported the presence of surficial contamination in the form of a contaminated graphite brick and soil contaminated with cesium-137 and called for a cleanup of the site. Although the results of this study did not contradict with the results obtained by DOE and did not identify any new sources of

contamination there was much publicity about the SEARCH report. Following this, the Cook County Board President requested that areas where contamination was found be fenced off from the public. DOE responded by enclosing Site A with an eight-foot high chain link fence.

To further understand the potential risk of the site to human health and the environment, extensive subsurface characterization activities are scheduled to begin by DOE in the Fall of 1993.

4. SITE RECONNAISSANCE

An on-site reconnaissance inspection was conducted on July 7, 1993 by Mr. Peter Sorensen and Mr. Mark Weber of the IEPA's Site Assessment Program. The inspection was conducted to identify site conditions, surrounding land uses, potential targets of concern and site topography. Prior to visiting the site, Mr. Sorensen met with Mrs. Sue Nielson and Mr. James Paulson of the U.S. Department of Energy. Mrs. Nielson is heading DOE's environmental investigation of the site and Mr. Paulson is the program manager of the environmental restoration division. The history of the site and the general procedures of the Preliminary Assessment process were discussed. Following this, the site was inspected and photographs were taken to characterize the site and to identify potential sources and targets of contamination.

The site reconnaissance revealed that the Palos Forest Preserve consists mainly of forested land with occasional ponds, wetlands and grassy areas located on it. Site A is forested land which is located on a rolling upland and is surrounded by a few topographic depressions. The surface water drainages from Site A appear to lead to Horse Collar Slough, Saganashkee Slough and the I & M Canal. Site A and its surrounding land are enclosed by an approximately eight foot high chain link fence. Plot M is a topographically level grassy area which is bordered by intermittent streams on its eastern and western sides. It is surrounded on all sides by forested land. Plot M is located approximately 2000 feet north of Site A.

5. Potential Sources of Contamination

Several potential sources of contamination exist within Plot M/Site A at the Palos Forest Preserve. These include several landfills, contaminated soil and underground storage tanks. The following briefly describes these potential sources of contamination.

5.1 Landfills

A. Plot M. Plot M was used as a landfill for radioactive wastes from Site A and the Metallurgical Laboratory in Chicago from about May 1944 to May 1949. Until April of 1946 both solid and liquid radioactive wastes were disposed of at Plot M but at

that time the disposal of liquid wastes was discontinued. Groundwater and subsurface soil samples in addition to nearby stream samples have indicated that contaminants have migrated from Plot M.

B. Buried reactor shield. On November 3, 1956 the buildings that housed CP-3' and the concrete shield of CP-2 were demolished and buried. Some of the buried reactor parts would be radioactive. Tritiated water has been found in soil bores taken from around the burial site.

C. Other suspected landfills. Six other areas with surficial disturbances have been preliminarily identified as potential past disposal areas. These have been identified from aerial photographs from the 1940's and 1950's. These areas may or may not have received radioactive or other hazardous waste.

5.2 Contaminated Soil

Surficial soil samples have indicated that several areas of contaminated surficial soil exist within Site A. Residual soil contamination occurs around some of the former building sites and other areas within Site A. In addition, a drain field where laboratory wastewater was drained without any treatment exists that may have contributed to contaminating areas of soil. Surficial soil samples taken on the drain field indicated that low levels of uranium-238 were present. In addition to this, soil erosion around Plot M may eventually expose contamination at the surface of the plot.

5.3 Underground Storage Tanks

Four suspected underground storage tank areas (tank suspect areas 1-4) have been tentatively identified within Site A. They have been identified in various ways including historic aerial photos and ground penetrating radar. No information exists on whether the suspected tanks are completely empty or partially full, nor are the characteristics of the constituents inside the tanks known.

6. EXPOSURE PATHWAYS

6.1 Groundwater Pathway

The geology of the Palos Hills area generally consists of glacial till overlying dolomite bedrock. According to borings conducted on-site in 1976 and well logs, the glacial till is approximately 140 feet thick in the Plot M area and 170 feet thick in the Site A area and consists of two tills: Malden Till and the overlying Wadsworth Till. The Wadsworth Till Member is a dense clayey silt, with numerous thin lenses and layers of sand and gravel in the upper 25 to 35 feet. The Malden Till Member contrasts with the Wadsworth Till as it consists mainly of sandy silt and gravel. The bedrock immediately underlying the glacial drift is a Silurian dolomite. There are no impermeable layers located between the land surface and the Silurian dolomite.

There are a few sections in this geologic sequence that are capable of producing water for well use. The shallowest

possibility is the sand layers that are located within the top 25 to 35 feet of the Wadsworth Till. Another groundwater possibility is within the saturated silt, sand and gravel of the Malden Till near the bedrock. In addition, joints and fractures within the dolomite bedrock are capable of providing water in the Palos Forest Preserve area.

Groundwater use within four miles of the site is limited to private wells and non-community public water supplies. The reason for this is that all of the towns within this distance utilize surface water from Lake Michigan for their municipal water supplies. There are several private wells located within the Forest Preserve that serve visitors. The one closest to the site is a well located in the Red Gate Woods approximately 1200 feet to the north of Plot M. This well draws water from the dolomite and is utilized by visitors of the Forest Preserve. The closest well that serves a permanent resident is located approximately one mile to the west of the site at the St. James Church. This well serves one permanent resident as well as the church's congregation.

In November 1973, tritium was detected in a hand-pumped water well located in the Red Gate Woods picnic area approximately 1200 feet north of Plot M. Periodic sampling of the forest preserve wells began shortly after this discovery. In addition, numerous monitoring wells have been drilled and utilized around Plot M and between Plot M and the Red Gate Woods picnic area. These wells have monitored the groundwater from the

upper and lower glacial till along with the water from the underlying dolomite. The primary focus of the sampling program has been the analysis of radionuclides, especially tritium. The results of the sampling program has shown that the shallow glacial till aquifer beneath Plot M has been significantly contaminated with tritium while the lower glacial till and dolomite aquifers have been contaminated by tritium but to a much lesser extent.

Sampling information on groundwater at Site A is limited to data from one well that is finished in the dolomite aquifer. Samples from this well have detected low levels of tritium.

6.2 Surface Water Pathway

Palos Forest Preserve is located between two major drainageways. The Des Plaines River to the north and the Saganashkee Slough in the south both lie within a mile of Site A/Plot M. Within the two valleys, three canals have been constructed: the Illinois and Michigan Canal (I & M Canal) and the Chicago Sanitary and Ship Canal along the Des Plaines River valley, and the Calumet Sag Channel in the Saganashkee Slough.

Surface water runoff from Plot M and Site A take different routes. Plot M is drained by two intermittent streams that flow along the eastern and western sides of the plot. The eastern one, the Red Gate Woods Stream, is narrow and deeply incised near Plot M. The intermittent stream to the west of Plot M is unnamed and joins the Red Gate Woods Stream before it empties into the I

& M Canal in the Des Plaines River valley. Three drainageways originate from Site A and drain to different areas. The eastern one most likely drains into Horse Collar Slough. The southeastern drainage drains in a southerly direction into the Saganashkee Slough. The third one drains the area northwest of Site A and empties into the I & M Canal.

Since the spring of 1976, surface water and sediment samples have been taken from various points around and downstream of Plot M, mainly in the Red Gate Woods Stream, and analyzed for tritium. These samples have detected elevated concentrations of tritium in the surface water and sediment with the highest concentrations being found nearest to Plot M and from a water seep that emerges from next to the plot and enters the Red Gate Woods Stream.

Since 1990, surface water and sediment samples have been collected from the water bodies around Site A and analyzed for radionuclides. The water bodies include Saganashkee Slough, Horse Collar Slough, and three small ponds northeast, northwest and southeast of the site. No elevated levels of radionuclides have been detected in the water body samples, except on one occasion when cesium-137 was found at low levels in the pond northeast of Site A. The sediment samples have detected radionuclides slightly above background levels in several of the water bodies. In addition to these samples, surface water runoff samples have been taken near tiles northeast of Site A that drain a portion of the site and near the entrance to the forest preserve on Archer Avenue. The samples collected from the

entrance have detected elevated levels of tritium while the water samples collected from the confluence of the tiles have detected low concentrations of tritium.

Several targets exist along these surface water routes. The I & M Canal and Saganashkee Slough are used as local fisheries and for other recreational purposes. Several wetlands exist in the vicinity of the site that may receive contaminated runoff. These include Horse Collar Slough and Saganashkee Slough in addition to several smaller, unnamed wetlands. Illinois Department of Conservation records indicate that the state endangered Pied-billed Grebe is known to occur at Saganashkee Slough.

5.3 Air Pathway

There have been no documented or suspected releases of contaminants to the air from Plot M/Site A. The site is well vegetated with trees and grasses, thus reducing the potential for a release of particulate contaminants to the air. Several wetlands and the state endangered Pied-billed Grebe exist within one mile of the site. No residences, schools or daycare facilities exist within 200 feet of the site.

6.4 Soil Exposure Pathway

Due to the fact that Plot M was capped with concrete and clean soil, surficial soil contamination most likely does not exist at Plot M at this time. However, natural erosional processes and/or vandalism of the Plot M cover could result in the contaminated soils beneath the site becoming exposed, allowing the public to come into contact with the contaminants. In addition, groundwater that has been contaminated by Plot M has been found to enter the Red Gate Woods Stream through a seep. This water may have contaminated the sediment of the intermittent stream and visitors may come into contact with it.

Site A differs with Plot M in that radioactive contaminants have been found near the ground surface. At the present time, forest preserve visitors cannot come into contact with the contaminants because the Department of Energy has enclosed the site with a eight foot high chain link fence, limiting access of the public.

Numerous soil samples have been collected at Plot M but they have been from bore holes rather than surficial samples. In the summer of 1990, a radiological survey was carried out and slightly higher levels of gamma radiation than background were detected at the surface of Plot M.

Numerous surficial soil samples have been collected at Site A since 1976 and a radiological survey was conducted in 1990. These studies have revealed that several locations exist at Site A that contain surficial radioactive contamination. In addition,

the environmental report written by SEARCH Technical Services in 1992 reported the presence of surficial contamination in the form of a contaminated graphite brick and soil contaminated with cesium-137.

The only targets for the soil exposure pathway are the forest preserve visitors. Plot M and Site A are both located in areas of the forest preserve that are not developed, thus limiting the number of people that go to those locations. However, there are hiking and cross country skiing trails throughout the preserve that allow access to the sites. The closest residence to the site is located approximately one mile to the west. No schools or daycare facilities exist within 200 feet of the property.

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APPENDIX A – SITE 5-MILE RADIUS MAP; APPENDIX B – SITE 15-MILESURFACE WATER MAP 4

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APPENDIX A

SITE FOUR-MILE RADIUS MAP

APPENDIX B

SITE 15-MILE SURFACE WATER MAP

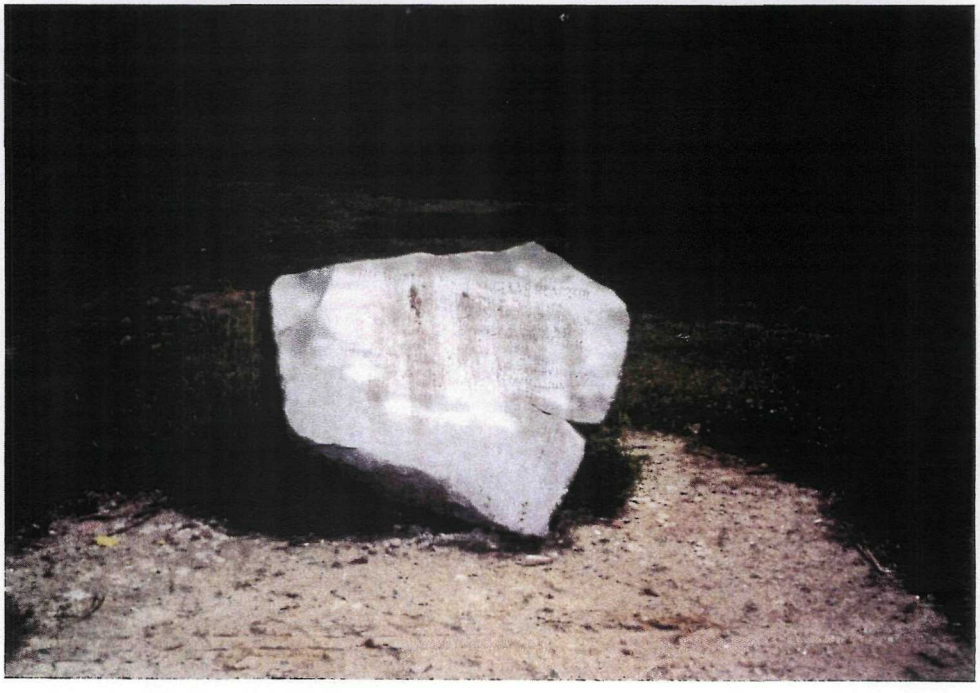
APPENDIX C

SITE PHOTOGRAPHS

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve
PHOTOGRAPH TAKEN BY: P. Sorensen	
COMMENTS: Fence that encloses Site A.	

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS: Marker that tells history of first nuclear reactor that was at Site A.



Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve
PHOTOGRAPH TAKEN BY: P. Sorensen	
COMMENTS: Suspect Area #3.	

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS: Suspect Area #3.

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve
PHOTOGRAPH TAKEN BY: P. Sorensen	
COMMENTS: Suspect Area #4.	

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS: Some Reactor remains of CP 3.

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve

PHOTOGRAPH TAKEN BY: P. Sorensen

COMMENTS:

Warning marker telling of Plot M.

DATE: 7/8/93

PHOTOGRAPH TAKEN BY: P. Sorensen

COMMENTS:

Plot M with warning marker.

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve
PHOTOGRAPH TAKEN BY: P. Sorensen	
COMMENTS: Plot M.	

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS: Plot M.

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve
PHOTOGRAPH TAKEN BY: P. Sorensen	
COMMENTS: Red Gate Woods Picnic area.	

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS: Red Gate Woods well.

Preliminary Assessment Photos

DATE: 7/8/93	SITE ILD#: 984903286 COUNTY: Cook
	SITE NAME: Palos Hills Forest Preserve

PHOTOGRAPH TAKEN BY: P. Sorensen

COMMENTS:

Sign located in Red Gate Woods Picnic area telling of the past history of Site A & Plot M & the work being done now.

DATE: 7/8/93
PHOTOGRAPH TAKEN BY: P. Sorensen
COMMENTS:

No Photo

APPENDIX D

U.S. EPA FORM 2050

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: IL CERCLIS Number: 984903286 CERCLIS Discovery Date: 7-20-92

1. General Site Information

Name:	Street Address:
Palos Hills Forest Preserve	Red Gate Woods

City:	State:	Zip Code:	County:	Co. Code:	Cong. Dist:
Palos Hills	IL	60465	Cook	031	05

Latitude: Longitude:	Approx. Area of Site:	Status of Site:
41 40' 0.0" 87 53' 0.0"	25 acres	Inactive

2. Owner/Operator Information

Owner:	Operator:
Cook Co. Forest Preserve District	U.S. Dept. of Energy
Street Address:	Street Address:
Red Gate Woods, Archer Ave.	9800 S. Cass Ave.
City:	City:
Palos Hills	Argonne
State: IL / Zip Code: 60465 / Telephone:	State: IL / Zip Code: 60439 / Telephone:
Type of Ownership:	How Initially Identified:
County	Citizen Complaint

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: IL	CERCLIS Number: 984903286	CERCLIS Discovery Date: 7-20-92

3. Site Evaluator Information

Name of Evaluator:	Agency/Organization:	Date Prepared:
Peter Sorensen	IEPA	8-16-93

Street Address:	City:	State:
2200 Churchill Rd.	Springfield	IL

Name of EPA or State Agency Contact:	Telephone:
Tom Crause	217/782-6760

Street Address:	City:	State:
2200 Churchill Rd.	Springfield	IL

POTENTIAL HAZARDOUS WASTE SITE

PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: IL

CERCLIS Number: 984903286

CERCLIS Discovery Date: 7-20-92

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site:
Forest/Fields

Site Setting:
Rural

Years of Operation:
Beginning Year: 1943
Ending Year: 1954

Type of Site Operations:
DOE

Waste Generated:
Onsite

Waste Deposition Authorized By: Former Owner

Waste Accessible to the Public
Yes

Distance to Nearest Dwelling, School, or Workplace:
4000 Feet

6. Waste Characteristics Information

Source Type	Quantity	Tier
Landfill	1.00e+00 acres	A
Contaminated soil	7.80e+00 acres	A
Non-drum containers	1.00e+03 gals	V

General Types of Waste:
Metals
Solvents
Radioactive Waste

Physical State of Waste as Deposited
Solid
Liquid

Tier Legend
C = Constituent W = Wastestream
V = Volume A = Area

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: IL CERCLIS Number: 984903286 CERCLIS Discovery Date: 7-20-92

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles: No Type of Ground Water Wells Within 4 Miles: Private Depth to Shallowest Aquifer: 55 Feet Karst Terrain/Aquifer Present: No	Is There a Suspected Release to Ground Water: Yes Have Primary Target Drinking Water Wells Been Identified: No Nearest Designated Wellhead Protection Area: None within 4 Miles	List Secondary Target Population Served by Ground Water Withdrawn From: 0 - 1/4 Mile: 0 >1/4 - 1/2 Mile: 0 >1/2 - 1 Mile: 3 >1 - 2 Miles: 3 >2 - 3 Miles: 3 >3 - 4 Miles: 3 Total: 12

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION State: IL CERCLIS Number: 984903286 CERCLIS Discovery Date: 7-20-92

8. Surface Water Pathway — Part 1 of 4

Type of Surface Water Draining Site and 15 Miles Downstream: Stream River	Shortest Overland Distance From Any Source to Surface Water: 50 Feet 0.0 Miles
Is there a Suspected Release to Surface Water: Yes	Site is Located in: > 500 yr floodplain

8. Surface Water Pathway — Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: No

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION
	State: IL / CERCLIS Number: 984903286
	CERCLIS Discovery Date: 7-20-92

8. Surface Water Pathway — Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: Yes

Secondary Target Fisheries:
None

8. Surface Water Pathway — Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) Yes

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:
None

Other Sensitive Environments Along the Surface Water Migration Path: Yes

Have Primary Target Sensitive Environments Been Identified: Yes

Secondary Target Sensitive Environments:
None

POTENTIAL HAZARDOUS

WASTE SITE

PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: IL

CERCLIS Number: 984903286

CERCLIS Discovery Date: 7-20-92

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: No

Number of Workers Onsite: None

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: No

10. Air Pathway

Total Population on or Within:	
Onsite	0
0 - 1/4 Mile	0
>1/4 - 1/2 Mile	0
>1/2 - 1 Mile	78
>1 - 2 Miles	1300
>2 - 3 Miles	13000
>3 - 4 Miles	25000
Total	39378

Is There a Suspected Release to Air: No

Wetlands Located Within 4 Miles of the Site: ~~No~~ Yes

Other Sensitive Environments Located Within 4 Miles of the Site: Yes
State endangered species

Sensitive Environments Within 1/2 Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area(acres)
~~0 - 1/4~~	~~Habitat for Federally designated endangered/threatened species~~

APPENDIX E

SUPPORTING DOCUMENTATION

References

1. Illinois Department of Conservation, Review of Sensitive Environments, August 25, 1993.

2. Illinois Department of Nuclear Safety, Review comments of SEARCH environmental report, January 20, 1993.

3. Illinois State Geological Survey, "Bedrock Aquifers of Northeastern Illinois", Circular 406, 1966.

4. Illinois State Geological Survey, "Geology, Hydrology, and Water Quality of the Cambrian and Ordovician Systems in Northern Illinois", Cooperative Groundwater Report 10, 1985.

5. Illinois State Geological Survey, "Groundwater Possibilities in Northeastern Illinois", Circular 198, 1955.

6. Illinois State Geological Survey, "Rock Stratigraphy of the Silurian System in Northeastern and Northwestern Illinois", Circular 479, 1973.

7. Illinois State Water Survey, Well Logs, February 17, 1993.

8. SEARCH Technical Services, "Reactor Remains in Palos Park, Illinois", December 1, 1992.

9. Site visit by Mr. Peter Sorensen on July 7, 1993.

10. United States Department of Energy, "Environmental Review for Site A/Plot M, Palos Forest Preserve, Cook County, Illinois", June, 1993.

11. United States Department of Energy, "Surveillance of Site A and Plot M, Report for 1989", 1989.

12. United States Department of Energy, "Surveillance of Site A and Plot M, Report for 1990", 1990.

13. United States Department of Energy, "Surveillance of Site A and Plot M, Report for 1991", 1991.

14. United States Department of Energy, "Surveillance of Site A and Plot M, Report for 1992", 1992.

15. United States Geological Survey, Topographic Map, Sag Bridge, IL, 1973.

16. United States Geological Survey, Topographic Map, Palos Park, IL, 1980.

17. United States Geological Survey, Topographic Map, Hinsdale, IL, 1980.

18. United States Geological Survey, Topographic Map, Berwyn, IL, 1980.

19. United States Department of the Interior, National Wetland Inventory Maps, IL, 1988.

Reference Number 1

Illinois Department of Conservation
life and land together

Brent Manning
Director

John W. Comerio
Deputy Director

Bruce F. Clay
Assistant Director

LINCOLN TOWER PLAZA • 524 SOUTH SECOND STREET • SPRINGFIELD 62701-1787
CHICAGO OFFICE • ROOM 4-300 • 100 WEST RANDOLPH 60601

January 27, 1993

Mr. Pete Sorensen
LPC/IEPA
P.O. Box 19276
Springfield, Illinois 62794-9276

Re: ILD #0312400009
Palos Hills Forest Preserve

Dear Mr. Sorensen:

Per you January 11, 1993 request the Department has completed its review on the above named CERCLIS Project.

Our review indicates:

- There are no sensitive resources (form attached) on site or in the 0-1/4, 1/4-1/2 mile radius of the site. Within the 1/2-1 mile radius a small portion of the Paw Paw Woods Natural Area is located in the NE 1/4 of Sec. 7, T37N, R12E.

- Along the water pathway, two natural areas are located adjacent to the I & M Canal. Lockport Prairie East Natural Area includes 53 acres in Section 27, T36N, R10E. Leafy Prairie-clover, listed as endangered at both the state and federal levels, grows at Lockport Prairie East. The Lemont East Geological Area is located in Section 15, T37N, R11E. This natural area is an abandoned quarry that shows an outstanding example of the Sugar Run trilobite fauna. No listed species are known from this natural area.

- A brochure on the Illinois & Michigan Canal State Trail is attached for your information.

Thank you for the opportunity to comment.

Sincerely,

Richard W. Lutz

Richard W. Lutz
Acting Chief
Division of Impact Analysis

RWL:mcp

attachments: Sensitive resources form
I & M Canal brochure

DEPARTMENT OF CONSERVATION IDENTIFICATION OF ENVIRONMENTAL SENSITIVE AREAS

ILD# 0312A00009

— = None known in DNR

TARGET DISTANCE CATEGORIES

SENSITIVE ENVIRONMENTS	On-site	0-1/4 mile	1/4-1/2 mile	stream milage
I. Critical habitat for Federally designated or proposed endangered or threatened species	—	—	—	—
II. Habitat known to be used by Federally designated or proposed endangered or threatened species	—	—	—	*
III. State wildlife refuge	—	—	—	—
IV. Spawning areas critical for the maintenance of fish/ shellfish species within a river system	—	—	—	—
V. Terrestrial areas utilized by large or dense aggregations of verbebrate animals for breeding	—	—	—	—
VI. Habitat known to be used by State designated or threatened species	—	—	—	*
VII. Habitat known to be used by a species under review as to its Federal endangered or threatened status	—	—	—	—
VIII. State lands designated for wildlife or game management	—	—	—	—
IX. State designated natural area	—	—	—	*
X. Particular areas, relatively small in size, important to the maintenance of unique biotic communities	—	—	—	—

If any of the sensitive areas identified above exist within the designated target distance limits, please post an asterisk (*) in the appropriate column.

Illinois Department of Conservation
LINCOLN TOWER PLAZA • 524 SOUTH SECOND STREET • SPRINGFIELD 62701-1787 CHICAGO OFFICE • ROOM 4-300 • 100 WEST RANDOLPH • CHICAGO 60601
Brent Manning, Director John W. Comerio, Deputy Director Bruce F. Clay, Assistant Director

August 23, 1993

Mr. Pete Sorensen
LPC/IEPA
P.O. Box 19276
Springfield, IL 62794-9276

Re: ILD #984903286
Palos Forest Preserve
Cook County

Dear Mr. Sorensen:

In response to your July 28, 1993 letter, the Department has reviewed the noted CERCLIS project in Cook County, Illinois.

We have determined there are no sensitive resources (form attached) on-site or in the 0-1/4, 1/4-1/2 mile radius. Within the 1 mile radius the state endangered Pied-billed Grebe is known to occur at Saganashkee Slough, T37N, R12E, Sec. 17.

There are no sensitive species occurrences along the I & M Canal waterpath. Listed species and nature preserves are present along the Des Plaines River. If information on these occurrences is needed please advise.

Thank you for the opportunity to comment.

Sincerely,

Richard W. Lutz

Richard W. Lutz
Acting Chief
Division of Impact Analysis

RWL:mcp

attachment: sensitive resources form

DEPARTMENT OF CONSERVATION IDENTIFICATION OF ENVIRONMENTAL SENSITIVE AREAS

LD# 9849O3286

— = none known from area

TARGET DISTANCE CATEGORIES

SENSITIVE ENVIRONMENTS	On-site	0-1/4 mile	1/4-1/2 mile	1 nominal water path stream milage
I. Critical habitat for Federally designated or proposed endangered or threatened species	—	—	—	—
II. Habitat known to be used by Federally designated or proposed endangered or threatened species	—	—	—	—
III. State wildlife refuge	—	—	—	—
IV. Spawning areas critical for the maintenance of fish/ shellfish species within a river system	—	—	—	—
V. Terrestrial areas utilized by large or dense aggregations of verbebrate animals for breeding	—	—	—	—
VI. Habitat known to be used by State designated or threatened species	—	—	—	—
VII. Habitat known to be used by a species under review as to its Federal endangered or threatened status	—	—	—	—
VIII. State lands designated for wildlife or game management	—	—	—	—
IX. State designated natural area	—	—	—	—
X. Particular areas, relatively small in size, important to the maintenance of unique biotic communities	—	—	—	—

If any of the sensitive areas identified above exist within the designated target distance limits, please put an asterisk (*) in the appropriate column.

Reference Number 2

STATE OF ILLINOIS
DEPARTMENT OF NUCLEAR SAFETY
1035 OUTER PARK DRIVE
SPRINGFIELD, ILLINOIS 62704
217-785-9900
217-782-6133 (TDD)

Jim Edgar
Governor

Thomas W. Ortciger
Director

January 20, 1993

Ms. Anna B. Ashcraft
Chief Attorney
Forest Preserve District of Cook County
Room 307- Richard J. Daley Center
Chicago, Illinois 60602

Dear Ms. Ashcraft:

Your letter of December 11, 1992, relative to the SEARCH Technical Services report on the Palos Forest Preserve was forwarded to me at the Illinois Department of Nuclear Safety (IDNS) by the Illinois Environmental Protection Agency for reply.

As IDNS is the lead State agency for radioactive contamination issues, this office has reviewed the subject report and prepared a set of comments. In summary, we found that the study did not result in any new findings and did not directly answer the stated purpose of the report, which was to determine if the extent and concentration of radioactive contaminants in the Forest Preserve have been accurately reported by government agencies.

If you have any questions about our review, please contact me directly at IDNS. My telephone number is 217-782-1322.

Sincerely,

Richard Allen

Richard Allen, Manager
Office of Environmental Safety

782-1322

RA:jem

cc: Gary King, IEPA
Rick Lanham, IEPA
Jay Hunze, USDOE

ILLINOIS DEPARTMENT OF NUCLEAR SAFETY
Review of SEARCH Technical Services Report on Site A/Plot M

January 1993

The Illinois Department of Nuclear Safety (IDNS) has conducted a review of the December 1, 1992, report entitled "Reactor Remains in Palos Park, Illinois," written by Linda Josephson of SEARCH Technical Services of Davenport, Washington. This report presents and discusses the results of analyses of samples taken from the Palos Park vicinity on September 12 and 13, 1992. The stated purpose of the study is to address public concerns that unburied radioactive material may be present at the site and that contamination of the area may exceed the levels and extent reported by government agencies.

In general we agree with the recommendations presented in the SEARCH Technical Services report, although we have concerns regarding the methodology described in the report. The methodology appears to be somewhat nonstandard, and the conclusions are generally not supported by the presented evidence and do not directly answer the stated purpose of the report (i.e., to determine if the extent and concentration of radioactive contaminants in the Palos Park Forest Preserve have been accurately reported by government agencies).

Concerning the methodology used, there is no discussion about how sampling locations were selected, nor how samples were collected. From the map it is impossible to determine if sampling locations were randomly selected, although they appear to have been selected nonrandomly. As for the analyses of the samples, the methods used are typical of those that might be done for an initial environmental survey. The exception is the strontium analysis method. IDNS is not familiar with methods for determining beta emitters using a sodium iodide detector.

The results do not contradict results obtained by the U.S. Department of Energy (DOE) or IDNS, and do not identify any new sources of contamination. This apparently satisfies the stated objective of the report, but this is not reflected in the conclusion section. To be more useful, the report should compare the current findings with previous studies by IDNS and DOE. These previous studies show a wide range of alpha, beta, and gamma emitting radionuclides present at the site, some of which are naturally occurring, some are present as fallout from nuclear testing, and some originate from the former Manhattan Project facilities and waste. It is not clear why the study focused on gamma emitters.

We consider the practice of reporting values greater than one but less than two standard deviations positive, but calling them not significant to be nonstandard and potentially confusing. This confusion extends to the discussion section of the report, where these not significant values for uranium are used to support questions about possible disposal or migration of waste into Saganashkee Slough.

The basis for the choice of 3 pCi/g as a standard for cleanup is not clear. Although it may be Westinghouse Hanford's practice to clean up to this level, 3 pCi/g is certainly not a consensus standard. Other standards could just as easily have been chosen, including the U.S. Nuclear Regulatory Commission's guideline of 15 pCi/g. The confusion here lies in the difference between "standards" and "practices." In addition, there is no clear distinction between contamination levels and exposure levels from contamination. Both of these factors must be taken into consideration when developing decisions about potential health effects and cleanup criteria.

Most cleanups attempt to reduce concentrations to levels as low below federal standards (levels required by law or regulation) as reasonably achievable, given the limitation of existing technologies. Thus while Westinghouse Hanford may aim to reduce concentrations to 3 pCi/g in practice, they are not required to do so by any federal standard. It appears that in this report the assumption is made that "current cleanup standards" should be taken as "a threshold of potential harm," and that the Westinghouse Hanford level should be that standard. This approach is not consistent with basic radiation safety criteria and practices that are set to protect potentially exposed populations from stochastic (nonthreshold) effects.

IDNS agrees with the report's observation that over time erosion will likely uncover buried material. In our opinion it is difficult to speculate about the condition of the Plot M concrete box, but we do suggest that closer examination of the box and close monitoring of other areas of the park may be warranted.

The conclusion that "similar excessively contaminated exposed material is probably widely present at the site" is not supported by data presented in the report, but could be gleaned from the work of DOE, Oak Ridge Associated Universities, and IDNS. The report could have more concisely addressed this concern by reviewing and referencing previous studies of contamination in the forest preserve.

We agree with the recommendation that the site should be remediated, although we feel the standards for cleanup should be based on nationally recognized standards rather than local practices. IDNS recognizes that the Cook County Forest Preserve District reserves the right to restrict access to sections of the preserve as it deems appropriate to protect public health and safety. All radiation levels detected and reported to date are below IDNS rules (32 Ill. Adm. Code 340) that require access restrictions, although we defer to the Forest Preserve District's authority and judgment in this matter.

To summarize, IDNS found this study to be reasonably standard in approach, although there were some areas of concern. The study did not result in any new findings, but does speculate about present and possible future conditions at the site, apparently on the basis of information derived from previous studies by DOE and others.

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

BEDROCK AQUIFERS OF NORTHEASTERN ILLINOIS

George M. Hughes
Paul Kraatz
Ronald A. Landon

ILLINOIS STATE GEOLOGICAL SURVEY
John C. Frye, Chief
URBANA

CIRCULAR 406
1966

COOPERATIVE GROUNDWATER REPORT 10
ILLINOIS STATE GEOLOGICAL SURVEY
ILLINOIS STATE WATER SURVEY
Champaign, Illinois 61820

In cooperation with
United States Geological Survey
Urbana, Illinois 61801

GEOLOGY, HYDROLOGY, AND WATER QUALITY OF THE CAMBRIAN AND ORDOVICIAN SYSTEMS IN NORTHERN ILLINOIS

Adrian P. Visocky, Marvin G. Sherrill, and Keros Cartwright

STATE OF ILLINOIS
DEPARTMENT OF ENERGY AND NATURAL RESOURCES
1985

STATE OF ILLINOIS
WILLIAM G. STRATTON, *Governor*
DEPARTMENT OF REGISTRATION AND EDUCATION
VERA M. BINKS, *Director*

DIVISION OF THE
STATE GEOLOGICAL SURVEY
JOHN C. FRYE, *Chief*
URBANA

CIRCULAR 198

GROUNDWATER POSSIBILITIES IN NORTHEASTERN ILLINOIS

A Preliminary Geologic Report

BY

R. E. BERGSTROM, J. W. FOSTER, LIDIA F. SELKREGG, and W. A. PRYOR

Service activities concerning groundwater are performed jointly by the Illinois State Geological Survey and the Illinois State Water Survey

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

URBANA, ILLINOIS
1955

479

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION

Rock Stratigraphy of the Silurian System in Northeastern and Northwestern Illinois

H. B. Willman

ILLINOIS STATE GEOLOGICAL SURVEY
John C. Frye, Chief
Urbana, IL 61801

CIRCULAR 479
1973

SWS

Reference Number 7

Illinois State Water Survey

Hydrology Division
2204 Griffith Drive
Champaign, Illinois 61820-7495
Telephone (217) 333-4300
Telefax (217) 333-6540

February 17, 1993

RECEIVED
FEB 24 1993
IEPA/DLPC

Mr. Pete Sorensen
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62794

Dear Mr. Sorensen:

As you requested during our telephone conversation on January 6, we are enclosing a few available private water well records from our files for each of the following locations:

Non Responsive

[redacted]

Also included is a computer printout of municipal wells for these same locations, and an explanation of the Illinois State Water Survey PICS Database.

We hope this information will be of help to you. If you have any questions or if we can be of further assistance, please call.

Sincerely,

Vicky A. Jones

Vicky A. Jones
Technical Assistant
Office of Ground-Water Information
Phone: (217) 333-9043

vaj/law

Enclosures as stated

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 6 in. Depth 120 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven_____. Drive Pipe Diam._____in. Depth_____ft.
   c. Drilled X. Finished in Drift_____. In Rock X.
   Tubular_____. Gravel Packed_____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field 75 Ft.
   Cess Pool_____ Sewer (non Cast iron)_____
   Privy_____ Sewer (Cast iron)_____
   Septic Tank 50 Ft. Barnyard_____
   Leaching Pit_____ Manure Pile_____
3. Is water from this well to be used for human consumption?
   Yes X No_____
4. Date well completed August 22, 1974
5. Permanent Pump Installed? Yes X No_____
   Manufacturer Aermotor Type Cubic
   Capacity 50 gpm. Depth of setting 84 ft.
6. Well Top Sealed? Yes X No_____
7. Pitless Adaptor Installed? Yes X No_____
8. Well Disinfected? Yes X No_____
9. Water Sample Submitted? Yes_____ No X

REMARKS: Owner instructed to take sample.

IDPH 4.005
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

16. Size Hole below casing: 6 in.
17. Static level _____ft. below casing top which is 8 ft. above ground level. Pumping level 12 ft. when pumping at 50 gpm for 2 hours.

18 FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Drift	52'	52'
Limestone	68'	120'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 8-22-74

R-19191

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 150 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cuttings		

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field 75
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank ~50 Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed 1-9-85
5. Permanent Pump Installed? Yes X Date 2-7-85 No____
   Manufacturer Red Jacket Type Submer Location Well
   Capacity 150 gpm. Depth of Setting 60 Ft.
6. Well Top Sealed? Yes X No____ Type _____
7. Pitless Adapter Installed? Yes X No____
   Manufacturer Williams Model Number _____
   How attached to casing? Bolted
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes X No____
10. Pressure Tank Size 82 gal. Type 4 x 203
    Location Utility Room
11. Water Sample Submitted? Yes X No #

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

16. Size Hole below casing: 4 3/8 in.
17. Static level 5 ft. below casing top which is 1 ft. above ground level. Pumping level 60 ft. when pumping at 150 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Soil	0	5
Sand Gravel	5	22
Rock	22	150

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Phil Emerson DATE 2-7-85

P-159192

IDPH 4.065
1/74 – KNB-1

Ill. Dept. of Public Health
Yellow Copy - Well Contractor
Blue Copy - Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 6[illegible] STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 180 ft.
      Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
      Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cuttings		

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 7/13/72
5. Permanent Pump Installed? Yes X No ____
   Manufacturer Barnes Type Subm
   Capacity ____ gpm. Depth of setting 120 ft.
6. Well Top Sealed? Yes X No ____
7. Pitless Adaptor Installed? Yes X No ____
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS:

IDPH 4.065
10/68

P-213587

GEOLOGICAL AND WATER SURVEYS WELL RECORD

[redacted]

16. Size Hole below casing: 5 in.
17. Static level 62 ft. below casing top which is 2 ft. above ground level. Pumping level 130 ft. when pumping at ____ gpm for ____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Overburden	132	132
Rock formation	48	180

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible signature] DATE 8/[illegible]

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 14 in. Depth 145 ft.
   Curb material _____. Buried Slab: Yes____ No____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

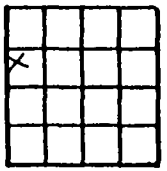
(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field _____
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank _____ Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Well furnishes water for human consumption? Yes____ No X
4. Date well completed 11/21/83
5. Permanent Pump Installed? Yes____ Date _____ No X
   Manufacturer _____ Type _____ Location _____
   Capacity _____ gpm. Depth of Setting _____ Ft.
6. Well Top Sealed? Yes____ No____ Type _____
7. Pitless Adapter Installed? Yes____ No____
   Manufacturer _____ Model Number _____
   How attached to casing? _____
8. Well Disinfected? Yes____ No____
9. Pump and Equipment Disinfected? Yes____ No____
10. Pressure Tank Size____ gal. Type _____
    Location _____
11. Water Sample Submitted? Yes____ No____

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

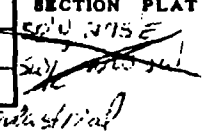
10. Property owner COUNTY OF DU PAGE (Knollwood Treatment Plant) Well No. _____
    Address 421 N. County Farm Rd., Wheaton, IL
    Driller GEORGE E. GAFFKE License No. 102-234
11. Permit No. 110149 Date 10/25/83
12. Water from Limestone Formation 13. County DuPage
    at depth 26 to 145 ft. Sec. 12-8F
14. Screen: Diam. _____ in. Twp. 37N
    Length: _____ ft. Slot _____ Rge. 11E
    Elev. _____



15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
14	Steel	+1½	32

SHOW LOCATION IN SECTION PLAT



16. Size Hole below casing: 12¼ in.
17. Static level 5 ft. below casing top which is 1½ ft. above ground level. Pumping level _____ ft. when pumping at _____ gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Brown Clay	10	10
Broken Rock & Gravel	16	26
Limestone	119	145

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED _____ DATE 3/29/84

IDPH 4.065
1/74 – KNB-1

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 180 ft.
   Curb material _____. Buried Slab: Yes_____ No____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth ~~180~~ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cuttings		

2. Distance to Nearest:
   Building 30 Ft. — Seepage Tile Field _____
   Cess Pool _____ — Sewer (non Cast iron) 60
   Privy _____ — Sewer (Cast iron) _____
   Septic Tank _____ — Barnyard _____
   Leaching Pit _____ — Manure Pile _____
3. Well furnishes water for human consumption? Yes X No____
4. Date well completed 5-17-76
5. Permanent Pump Installed? Yes X Date 5-17-76 No____
   Manufacturer Barnes Type Submer Location Well
   Capacity____gpm. Depth of Setting 105 Ft.
6. Well Top Sealed? Yes X No____ Type _____
7. Pitless Adapter Installed? Yes X No____
   Manufacturer Williams Model Number _____
   How attached to casing? Clamp on
8. Well Disinfected? Yes X No____
9. Pump and Equipment Disinfected? Yes X No____
10. Pressure Tank Size 42 gal. Type Tall
    Location Basement
11. Water Sample Submitted? Yes____ No X

REMARKS:

IDPH 4.065
1/74 – KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

16. Size Hole below casing: 5 in.
17. Static level 60 ft. below casing top which is 2 ft. above ground level. Pumping level 105 ft. when pumping at____ gpm for _____ hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Overburden	105	105
Limestone	75	180

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 5/26

White Copy – Ill. Dept. of P[illegible] Health
Yellow Copy – We[illegible]ntractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUEST[illegible] AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, ST[illegible] OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 150 ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled X. Finished in Drift____. In Rock X.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 35' Ft. Seepage Tile Field 75'
   Cess Pool____ Sewer (non Cast iron)____
   Privy____ Sewer (Cast iron)____
   Septic Tank 50 Barnyard____
   Leaching Pit____ Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed 2/18/74
5. Permanent Pump Installed? Yes X No____
   Manufacturer Reda Type Submersible
   Capacity 10 gpm. Depth of setting 100' ft.
6. Well Top Sealed? Yes X No____
7. Pitless Adaptor Installed? Yes X No____
8. Well Disinfected? Yes X No____
9. Water Sample Submitted? Yes____ No X

REMARKS: Owner instructed to take sample.

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

16. Size Hole below casing: 5 in.
17. Static level____ft. below casing top which is 8 ft. above ground level. Pumping level 60 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Drift	80	80
Limestone	70	150

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Owner Yeoman DATE 2/18/74

White Copy -- Ill. Dept. of Pu... Health
Yellow Copy – ... ntractor
Blue Copy – Well O...ner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUEST... AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, ST... OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL /W... ER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 125 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____in. Depth _____ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 10' Ft. Seepage Tile Field 75'
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank 50 Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Is water from this well to be used for human consumption?
   Yes X No_____
4. Date well completed 2/11/74
5. Permanent Pump Installed? Yes X No_____
   Manufacturer Peda Type Submersible
   Capacity 10 gpm. Depth of setting 80' ft.
6. Well Top Sealed? Yes X No_____
7. Pitless Adaptor Installed? Yes X No_____
8. Well Disinfected? Yes X No_____
9. Water Sample Submitted? Yes_____ No_____ X

REMARKS: Owner instructed to take sample.

16. Size Hole below casing: 5 in.
17. Static level _____ft. below casing top which is 8 ft. above ground level. Pumping level 20 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Drift	41	41
Limestone	84	125

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED _____ DATE 2/12/74

IDPH 4.065
10/68

White Copy – Ill. Dept. of Publ[illegible]alth
Yellow Copy – Wel[illegible]actor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTE[illegible]ND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, ST[illegible]OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled ✓. Finished in Drift____. In Rock ✓.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 5 Ft. Seepage Tile Field____
   Cess Pool____ Sewer (non Cast iron) ✓
   Privy____ Sewer (Cast iron) ✓
   Septic Tank 50' Barnyard____
   Leaching Pit____ Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes____ No____
4. Date well completed____
5. Permanent Pump Installed? Yes ✓ No____
   Manufactuer Layne Type Submersible
   Capacity 10 gpm. Depth of setting 60' ft.
6. Well Top Sealed? Yes ✓ No____
7. Pitless Adaptor Installed? Yes ✓ No____
8. Well Disinfected? Yes ✓ No____
9. Water Sample Submitted? Yes____ No ✓

REMARKS:

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Non Responsive

16. Size Hole below casing: 5 in.
17. Static level 12 ft. below casing top which is 5 ft. above ground level. Pumping level 60 ft. when pumping at 10 gpm for 1/2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
NO BLACK SOIL	0	0
YELLOW CLAY	0	7
FINE GRAVEL	3	10
LARGE BOLDER	10	20
BLUE CLAY	15	35
SAND & GRAVEL	10	45
LIME STONE	85	130

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 11/23/71

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth____ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam. 5 in. Depth 100 ft.
   c. Drilled X. Finished in Drift____. In Rock X.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 15 Ft. Seepage Tile Field____
   Cess Pool____ Sewer (non Cast iron)____
   Privy____ Sewer (Cast iron)____
   Septic Tank City Sewer Barnyard____
   Leaching Pit____ Manure Pile____
3. Is water from this well to be used for human consumption?
   Yes X No____
4. Date well completed 10-15-69
5. Permanent Pump Installed? Yes X No____
   Manufacturer Reda Type Submersible
   Capacity 16 gpm. Depth of setting 120 ft.
6. Well Top Sealed? Yes X No____
7. Pitless Adaptor Installed? Yes X No____
8. Well Disinfected? Yes X No____
9. Water Sample Submitted? Yes____ No X

REMARKS: 7 of 4 in Spoon Valley Subd. Located on the SW.

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner SEFARA BUILDERS Well No.____
    Address 4334 LONGMEADOW LANE Western Springs ILL
    Driller KURT KUEHN License No. 92-117
11. Permit No. 8455 Date SEPT 30 1969
12. Water from Lime STONE (Formation) 13. County DuPAGE
    at depth____ to____ft.
14. Screen: Diam. None in.
    Length:____ft. Slot____
    Sec. 1
    Twp. 37N
    Rge. 11E
    Elev.____

SHOW LOCATION IN SECTION PLAT

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	15	0	100

16. Size Hole below casing: 5 in.
17. Static level 80 ft. below casing top which is 8" ft. above ground level. Pumping level 120 ft. when pumping at 16 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
BLACK DIRT	0	NONE
YELLOW CLAY	0	25
BLUE CLAY	36	61
Gravel	20	81
SAND	8	89
FINE GRAVEL	11	100
Lime STONE	60	160

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Kurt Kuehn DATE 10-21-69

P-12

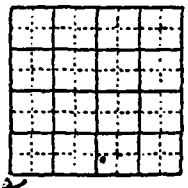
Line: additional data from driller

(13210—20M—3-55) 2

Page 1 **ILLINOIS GEOLOGICAL SURVEY, URBANA**

Strata	Thickness	Top	Bottom
Examined by T. C. Buschbach 9/49			
PLEISTOCENE SYSTEM			
Sand, very silty, argillaceous, brownish orange, oxidized, leached	15		15
Sand and gravel, dolomitic, silty	10		25
Till, calcareous, brownish gray	20		45
ORDOVICIAN SYSTEM			
Platteville formation			
Dolomite, light grayish buff, fine to medium	30		75 TD
Driller's log			
Sand. clay	4		4
Sand	21		25
Shale	24		49
Limestone	—		75
Water level = 12'			
50' of 4½" casing; 4½' drill hole in bottom of hole			
Completed 6-5-42			

COMPANY J. T. Anderson
FARM Collins, Phillip NO.
DATE DRILLED 1942 January COUNTY NO.
AUTHORITY T. C. Buschbach
ELEVATION 580' est T.M.
LOCATION 500' S line, 200'W line of SE
COUNTY GRUNDY S.S.#7333 10-34N-7E



White Copy – Il. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 290 ft.
      Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 68 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
      Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field 25
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50 Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 12-18-73
5. Permanent Pump Installed? Yes X No ____
   Manufacturer Kerner Type Submersible
   Capacity 10 gpm. Depth of setting 147 ft.
6. Well Top Sealed? Yes X Williams Vermin Proof seal No ____
7. Pitless Adaptor Installed? Yes X Williams attached to casing No by compression
8. Well Disinfected? Yes X No gasket connection
9. Water Sample Submitted? Yes ____ No X

REMARKS: 202 WXT gal. pressure tank located in house

IDPH 4.065
10-72
KNB-1

GEOLOGICAL AND WATER SURVEYS WELL RECORD

[redacted]

16. Size Hole below casing: 5 in.
17. Static level 120 ft. below casing top which is +1 ft. above ground level. Pumping level 125 ft. when pumping at 10 gpm for 1 hours.

18.

FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Top Soil	2'	2'
Clay	66'	68'
Limestone	222'	290'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles [illegible] DATE 5/15/74

Lockport Well & Pump

48 [illegible] additional data from driller [illegible]
Originally drilled for [illegible] O. McKee [illegible]

City Morris R.F.D. 2 County Grundy.

Non Responsive
[redacted]

Contractor Tom Anderson. Address Morris Ill.

Date drilled 1917, Dec 21 Elev. above sea level top of well

Depth 163 ft.

Log Clay with pebbles 0 ft to 26 ft, Sand 26 ft to 35 ft, Hard Pan 35 ft to 60 ft, Lime Stone 60 ft to 163 ft.

Were drill cuttings saved Where filed

Size hole 4 in. If reduced, where and how much

Casing record 78 ft { 10' of 4" black casing; 68' of 4" galv [illegible]; 22' of 3¼" casing (about 1917) }

Distance to water when not pumping Distance to water is

feet after pumping at G. P. M. for hours.

Reference point for above measurements

Type of pump Distance to cylinder 31' of [illegible] rod; 3 x 16 [illegible] cylinder; 53' of 1¼ pipe

Length of cylinder Length of suction pipe below cylinder

Length stroke 6 in. Speed

Hours used per day 10 Minutes Type of power Gas Engine

Rating of motor 2 H. P. Rating of pump in G. P. M.

Can following be measured: (1) Static water level No

(2) Pumping level No (3) Discharge yes

(4) Influence on other wells None.

Temperature of water Was water sample collected No

Date Effect of water on meters, hot water coils, etc. No effect; Medium soft water, Very little lime.

Date of Analysis Analysis No.

Recorder Herbert E Clayton

Date March 13-1934

2807-19399 12

Reference Number 8

REACTOR REMAINS IN PALOS PARK, ILLINOIS

By
Linda Josephson

1 December 1992

SEARCH technical services
HCR Box 17 Davenport, WA 99122
phone or fax (509) 725-6666

SUMMARY

Eighteen samples of water, vegetation, soil and debris were collected from the vicinity of the former Manhattan Project reactor and disposal site, known as Site A/Plot M, located in Cook County's Palos Park Forest Preserve, southwest of Chicago. These samples were analyzed for gamma radioactivity to determine if government surveys portray the extent of contamination at the site.

This limited sampling found graphite, apparently former reactor moderator material, with 7.8 pCi/g of europium-152 activity in an exposed, supposedly non-radioactive dumpsite, and soil contaminated with cesium-137 activity equivalent to the maximum previously reported. These contamination levels require remedial cleanup of the site.

ANL/EAIS/TM-99

Reference Number 10

Environmental Review for Site A/Plot M, Palos Forest Preserve, Cook County, Illinois

Environmental Assessment and Information Sciences Division

Argonne National Laboratory

Operated by The University of Chicago,
under Contract W-31-109-Eng-38, for the

United States Department of Energy

Reference Number 11

0312400009/Cook Co.
Palos Park Forest Preserve
RI/Technical Report

ANL-90/7

Environment, Safety and Health Department
Environment, Safety and Health Department
Environment, Safety and Health Department

Surveillance of Site A and Plot M Report for 1989

by N. W. Golchert

Argonne National Laboratory, Argonne, Illinois 60439
operated by The University of Chicago
for the United States Department of Energy under Contract W-31-109-Eng-38

Environment, Safety and Health Department
Environment, Safety and Health Department
Environment, Safety and Health Department

Palos Park Forest Preserve
SF / Tech Report.
ANL-91/2

Div F.U

Reference Number 12

Environment, Safety and Health Division

Environment, Safety and Health Division

Environment, Safety and Health Division

Environment, Safety and Health Division

Surveillance of Site A and Plot M Report for 1990

by N. W. Golchert

Argonne National Laboratory, Argonne, Illinois 60439
operated by The University of Chicago
for the United States Department of Energy under Contract W-31-109-Eng-38

Environment and Waste Management Programs
Environment and Waste Management Programs
Environment and Waste Management Programs

Reference Number 13

ANL-92/13

0312400009--Cook Co.
Palos Forest Preserve
SF/Technical

Surveillance of Site A and Plot M Report for 1991

by N. W. Golchert

Argonne National Laboratory, Argonne, Illinois 60439
operated by The University of Chicago
for the United States Department of Energy under Contract W-31-109-Eng-38

Environment and Waste Management Programs
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Environment and Waste Management Programs
Environment and Waste Management Programs

Reference Number 14

ANL-93/4

Surveillance of Site A and Plot M Report for 1992

by N. W. Golchert

Argonne National Laboratory, Argonne, Illinois 60439
operated by The University of Chicago
for the United States Department of Energy under Contract W-31-109-Eng-38